GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

UNSTARRED QUESTION NO:6530
ANSWERED ON:06.05.2015
NUCLEAR WASTE
Kumar Dr. Virendra

Will the Minister of ATOMIC ENERGY be pleased to state:

(a) whether the Government has made any assessment of the quantity of nuclear waste produced by nuclear power plants in the country;

(b) if so, the details thereof, plant-wise and State-wise; and

(c) the method adopted by the Government for disposal of said waste?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH) :

(a) Yes sir.

(b)&(c) Nuclear waste is classified into high, intermediate and low levels depending on the level of radioactivity in it. The spent fuel which contains long lived radioisotopes are stored for a long period to reduce the level of radioactivity and subsequently reprocessed at reprocessing plants for collecting fissile elements. The generation of high level waste is at reprocessing plants. The quantity of this waste in our country is much smaller due to our adoption of the closed fuel cycle. High level waste generated from the reprocessing plant is vitrified into a glassy form, contained in multiple barrier containers and stored for an interim period of three to four decades in engineered vaults with necessary surveillance facilities. After cooling down in these storage facilities, waste containers will be stored for long term in deep geological repositories.

Reprocessing and Waste Management plants are currently being operated by Bhabha Atomic Research Centre (BARC) for spent fuels arising out of unsafeguarded reactors. The low and intermediate level nuclear waste containing radioactive substances with short half life are generated at nuclear power plants and are processed at the site in the following manner:

(i) The generated waste is solidified by fixing this in materials like cement, polymers, glass etc., to ensure that it does not move.

(ii) The solidified waste is then stored in specially fabricated double walled high integrity stainless steel container.

(iii) The containers containing the solidified waste are stored inside a high integrity concrete pit at each of the nuclear power plant site.

(iv) As the waste is fixed in cement, glass, polymer, it is immobilized, and its placement in high integrity containers inside a pit ensures that the radioactive wastes is completely insulated from the environment.

The radioactivity level of the stored waste reduces with time and by the end of the plant life, falls to normal levels. Such facilities for handling low and intermediate level waste are located at all the nuclear power stations viz. Tarapur (Maharashtra), Rawatbhata (Rajasthan), Kalpakkam (Tamil Nadu), Narora (Uttar Pradesh), Kakrapar (Gujarat) and Kaiga (Karnataka). The quantity of low and intermediate level waste to be stored at site during the life time including decommissioning is within 0.15 cubic meters/year/MW.